

- c. a nucleic acid which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO:2, wherein said fragment comprises at least 500 contiguous amino acids of SEQ ID NO:2 and has MEKK1 activity;
- d. an nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3, and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- e. a nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- f. a nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of the insert of the plasmid deposited with the ATCC as Accession Number PTA-1836, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- g. a nucleic acid comprising the nucleotide sequence which encodes a polypeptide comprising the amino acid sequence of SEQ ID NO:2 or the amino acid sequence encoded by the cDNA insert of the plasmid deposited with ATCC as Accession Number PTA-1836;
- h. a nucleic acid encoding a MEKK1 allelic variant, wherein said MEKK1 allelic variant comprises a sequence, an amino acid sequence, having at least about 90% amino acid sequence identity with SEQ ID NO:2, wherein said nucleic acid encodes for amino acid residues 1 to 20 of SEQ ID NO:2, and wherein said allelic variant has MEKK1 activity; and *Claim 10*
- p27*
- p28*

- i. a nucleic acid encoding a MEKK1 allelic variant, wherein said MEKK1 variant comprises a sequence, an amino acid sequence having at least about 97% amino acid sequence identity with SEQ ID NO:2 and wherein said allelic variant has MEKK1 activity.

54. (New) The isolated nucleic acid of claim 53, wherein said nucleic acid comprises a detectable label.

55. (New) The isolated nucleic acid of claim 54, wherein said detectable label is selected from the group consisting of a chemiluminescent, fluorescent, radioactive, and colorimetric label. p 33-1

56. (New) An isolated vector selected from the group consisting of:

- a. a vector comprising a recombinant nucleic acid comprising the nucleotide sequence of SEQ ID NO: 1, or SEQ ID NO:3;
- b. a vector comprising a recombinant nucleic acid comprising the nucleotide sequence of the cDNA insert of the plasmid deposited with the ATCC as Accession Number PTA-1836 or a portion thereof comprising the coding region;
- c. a vector comprising a recombinant nucleic acid which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO:2, wherein said fragment comprises at least 500 contiguous amino acids of SEQ ID NO:2 and has MEKK1 activity;
- d. a vector comprising a recombinant nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3, and wherein said nucleic acid encodes for a protein having MEKK1 activity;

C4
cont

- e. a vector comprising a recombinant nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- f. a vector comprising a recombinant nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of the insert of the plasmid deposited with the ATCC as Accession Number PTA-1836, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- g. a vector comprising a recombinant nucleic acid comprising the nucleotide sequence which encodes a polypeptide comprising the amino acid sequence of SEQ ID NO:2 or the amino acid sequence encoded by the cDNA insert of the plasmid deposited with ATCC as Accession Number PTA-1836;
- h. a vector comprising a recombinant nucleic acid encoding MEKK1 allelic variant, wherein said MEKK1 allelic variant comprises a sequence, an amino acid sequence, having at least about 90% amino acid sequence identity with SEQ ID NO:2, wherein said nucleic acid encodes for amino acid residues 1 to 20 of SEQ ID NO:2, and wherein said allelic variant has MEKK1 activity; and
- i. a vector comprising a recombinant nucleic acid encoding a MEKK1 allelic variant, wherein said MEKK1 variant comprises a sequence, an amino acid sequence having at least about 97% amino acid sequence identity with SEQ ID NO:2 and wherein said allelic variant has MEKK1 activity.

57. (New) A host cell selected from the group consisting of:

C4
cont

- a. a host cell comprising a recombinant nucleic acid comprising the nucleotide sequence of SEQ ID NO:1, or SEQ ID NO:3;
- b. a host cell comprising a recombinant nucleic acid comprising the nucleotide sequence of the cDNA insert of the plasmid deposited with the ATCC as Accession Number PTA-1836 or a portion thereof comprising the coding region;
- c. a host cell comprising a recombinant nucleic acid which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO:2, wherein said fragment comprises at least 500 contiguous amino acids of SEQ ID NO:2 and has MEKK1 activity;
- d. a host cell comprising a recombinant nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3, and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- e. a host cell comprising a recombinant nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of SEQ ID NO:1, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- f. a host cell comprising a recombinant nucleic acid which has at least about 90% nucleotide sequence identity with the nucleotide sequence of the insert of the plasmid deposited with the ATCC as Accession Number PTA-1836, wherein said nucleic acid comprises nucleotide residues 1 to 64 of SEQ ID NO:1 and wherein said nucleic acid encodes for a protein having MEKK1 activity;
- g. a host cell comprising a recombinant nucleic acid comprising the nucleotide sequence which encodes a polypeptide comprising the amino acid sequence of

C4
Cont

SEQ ID NO:2 or the amino acid sequence encoded by the cDNA insert of the plasmid deposited with ATCC as Accession Number PTA-1836;

- h. a host cell comprising a recombinant nucleic acid encoding a MEKK1 allelic variant, wherein said MEKK1 allelic variant comprises ~~a sequence~~, an amino acid sequence, having at least about 90% amino acid sequence identity with SEQ ID NO:2, wherein said nucleic acid encodes amino acid residues 1 to 20 of SEQ ID NO:2, and wherein said allelic variant has MEKK1 activity; and
- i. a host cell comprising a recombinant nucleic acid encoding a MEKK1 allelic variant, wherein said MEKK1 variant comprises a sequence, an amino acid sequence having at least about 97% amino acid sequence identity with SEQ ID NO:2 and wherein said allelic variant has MEKK1 activity;

wherein said recombinant nucleic acid is operatively linked to an expression control element.

- C4
Cont
- 58. (New) The host cell of claim 57, wherein said host cell is a prokaryotic cell or a eukaryotic cell.
 - 59. (New) The host cell of claim 58, wherein said eukaryotic cell is a mammalian cell.
 - 60. (New) A method for producing a MEKK1 polypeptide selected from the group consisting of:
 - a. maintaining a host cell under condition suitable for expression, wherein said host cell comprises a recombinant nucleic acid comprising SEQ ID NO:1 or SEQ ID NO:3; and
 - b. maintaining a host cell, under condition suitable for expression, wherein said host cell comprises a recombinant nucleic acid comprising a fragment of SEQ ID